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April 25, 2005

Mr. Steve Burr
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, Arizona 85007-2935

RE: Work Plan for Contract No. EV03-0021BE Hazardous Air Pollutants Program

Dear Mr. Burr:

Weston Solutions, Inc. (Weston) is pleased to present the attached Work Plan for the Hazardous Air Pollutants Program to the Arizona Department of Environmental Quality (ADEQ). The Work Plan outlines Weston's Scope of Work for this project.

If you have any questions regarding the Work Plan, please do not hesitate to call me at 480-477-4912.

Sincerely,

Weston Solutions, Inc.

Todd Mehall
Project Manager

Attachment

Work Plan
For
State Hazardous Air Pollutants Program
Procurement Reference Number EV-05-0080

Weston Solutions, Inc. (Weston) provided a "Method of Approach" in Section 4 of the final proposal dated March 3, 2005. This Work Plan represents a refinement of the proposal based on discussions with the Arizona Department of Environmental Quality (ADEQ) at the March 17, 2005 kickoff meeting at the ADEQ offices. This Work Plan supersedes the Method of Approach as the ultimate Scope of Work for the project.

1. TASK 1 – IDENTIFY CATEGORIES

Under this task, Weston will identify the source categories that emit Federal Hazardous Air Pollutants (HAPs) and should be considered for listing under the proposed state air toxics regulations such that new and modified sources in those categories with the potential to emit 1 ton per year (tpy) of a single HAP or 2.5 tpy of a combination of HAPs would be potentially subject to HAPRACT.

The following outlines the approach to accomplish the objectives of this task.

1.1 Task 1-a. Screening

Weston will use data supplied by ADEQ on §112 HAP sources and emissions and screening techniques to determine ambient impacts resulting from sources with potential emissions of HAPs exceeding the 1-tpy or 2.5-tpy thresholds. Weston assumes the information supplied by ADEQ will contain sufficient detail on potential emissions of HAPs to determine the potential for these sources to cause adverse impacts on human health or the environment. To accomplish this task, Weston will:

- Review the 5/11/93 "Revised Background and Rationale for Proposed HAP Screening Methodology, ADEQ."

- Review procedures for modeling various types of chemicals and source groups.

- Review modeling procedures for modeling point, area, and mobile sources.

- Review background data. Weston will review available ambient monitoring data for HAPs as supplied by ADEQ or other readily available sources.

- Meet with the ADEQ air quality modeling staff to discuss the modeling methodology and sources of stack data for the facilities identified for screening. (Weston's Technical Leader for this task, Steve Mauch, will meet with ADEQ).

- Develop a modeling approach that will document the process to be used to conduct the screening modeling. Weston intends to use the SCREEN model to conduct the initial analysis. If refined modeling is required the modeling approach will be modified to discuss refined modeling. The modeling approach will address the following items:

    - Screening modeling procedures, including:
        - Development of an Arizona specific meteorological array vs. using the array contained within the SCREEN model, if possible. If a specific set is developed for Arizona or for various regions of Arizona, the ISC model would be used in a screening mode.
        - Conversion factors for converting hourly concentrations to longer averaging periods.
        - Model option selection.
        - Receptor distances and heights.
        - Building dimensions.

    - Development of background values.

    - If needed, the approach would be modified to address when to use a screening vs. refined model. In some cases where there are multiple facilities emitting the same pollutant in the same local area, it might be more appropriate to use a refined model at first rather than attempt a screening process.

    - Refined modeling procedures (if needed) including:
        - Receptor locations, heights and grid spacing.
        - Building dimensions.
        - Meteorological data selection and processing.
        - Model option selection.

    - Weston assumes that the stack parameter data will be readily available from ADEQ sources to conduct the modeling. If data for specific sources are not available, Weston will develop alternative approaches for modeling these sources.

- Weston has reviewed the ADEQ emissions database and determined that there are approximately 74 facilities covering 42 unique SICs and 79 pollutants. For purposes of the initial screening, it is assumed only one facility per SIC will be modeled.

1.2 Task 1-b. Develop Ambient Air Criteria for Federal HAPs Using Available Sources

To complete this task for the HAPs identified in the Clean Air Act, Weston will develop a hierarchy of health effects criteria for comparison to predicted concentrations. The approximately 79 compounds identified in the ADEQ database will be the basis for this effort. Weston will initially propose recommended ambient air quality criteria guidelines for all of the compounds in the database, but will finalize values for the top 50 compounds based on emissions and modeling results. Three different averaging times will be considered: annual, 24-hour, and 1-hour. Not all compounds will have guidelines developed for each averaging time, rather only those averaging times applicable to the toxicological properties of the compound will be proposed.

A variety of data sources will be used in the development of these guidelines. U.S. EPA values will be preferentially used where possible because EPA toxicological criteria are typically well researched and peer reviewed. The data sources to be considered include:

- EPA's Integrated Risk Information System (IRIS)
- EPA's Health Effects Assessment Summary Tables (HEAST)
- EPA's Region 3 Risk-Based Concentrations (RBCs)
- EPA's Region 9 Preliminary Remediation Goals (PRGs)
- EPA's National Center for Environmental Assessment (NCEA)
- ATSDR Minimal Risk Levels (MRLs)
- California EPA Risk Assessment Guidelines – short and long term
- World Health Organization database (WHO)
- Other sources including occupational values (e.g., OSHA PELs) and short term exposure criteria (e.g., ERPGs)

The deliverable for this task will be a section of the report describing the process for deriving guidelines, including the hierarchy of sources used. Also, a series of tables with the recommended guideline value along with a reference to the specific criteria used to develop the value will be provided. Weston will rely on health-based criteria in the available literature. A maximum of 10 pollutant criteria (including any of the averaging times) will be developed from data sources not identified above or not readily available from other sources, depending on data availability. In-depth research and criteria development is not within the scope of this work plan.

It is assumed that the ADEQ will provide a review of this section and the applicable criteria. Weston will modify the section and specific criteria based on this review. This review and potential modification is assumed to take place prior to the stakeholder meetings.

Weston will then develop the methodologies to determine if those concentrations modeled under Task 1-a will result in adverse impacts to health and/or the environment. To complete this task, Weston will conduct the following:

- Review the 5/11/93 "Revised Background and Rationale for Proposed HAP Screening Methodology, ADEQ"; the "Arizona Air Toxic Control Program Policy"; and the "Arizona Ambient Air Quality Guidelines (AAAQG)."

- Establish a listing of source categories and pollutants. Weston will select the highest emitting facility within each source category for each pollutant emitted in excess of the 1 tpy/2.5 tpy criteria for modeling.

- Estimate an ambient concentration of each chemical from each source (or source category) using the modeling techniques developed under Task 1-a. The ambient concentration will be added to the estimated background value, if available. If ambient background values are not available, then a background may not be added to the modeled concentration. Weston has assumed the screening will cover up to 50 chemicals for up to 50 facilities.

- Compare the estimated concentration for the highest emitting facility in each source category (including background) to a health-based criterion identified in Task 1-b. If the concentration exceeds this criterion, the source category will be considered for inclusion in the lists of sources that are subject to the HAPRACT rules.

- Consider more refined modeling for those facilities that do not pass the initial screening modeling. This modeling would include using EPA dispersion models such as CTSCREEN, ISC, CALPUFF or AERMOD. Sophisticated complex terrain modeling will not be conducted due to the complexity of setting up the modeling files.

- Consider a screening approach when evaluating impacts of the various chemicals. Weston will review this approach as discussed below:

    - A chemical/source group would be considered for listing if the modeled concentrations are 20% greater than a given health-based criteria. (Note that 20% is an example.) This value would be discussed with ADEQ and agreed upon before proceeding with this task.

    - A chemical/source group would be exempted from listing if the modeled concentrations are less than 80% of a given health-based criteria.

    - For concentrations that are within 20% of a given health-based criteria, Weston will provide ADEQ with a recommendation for that specific compound based on various health-based and modeling considerations. ADEQ will then decide whether the source category should be listed.

- Prepare a list of source categories that should be considered for being subject to the proposed air toxics regulations.

2. TASK 2 – DEVELOP DE MINIMIS AMOUNTS FOR FEDERAL HAPS

In anticipation of EPA adopting de minimis amounts for Federal HAPs under §112(g) of the CAAA, §49-426.06(B) provides that ADEQ shall establish de minimis amounts for HAPs that are not federally enforceable. However, since EPA has failed to adopt de minimis amounts for Federal HAPs when it adopted rules under §112(g), ADEQ must adopt de minimus amounts for Federal HAPs, as well as any state HAPs that may be listed. The statutes provide that in establishing de minimis amounts, ADEQ must consider any relevant guidelines or criteria promulgated by EPA. As specified in the ADEQ RFP, Weston will only be reviewing development of de minimus levels for Federally listed HAPs. Developing de minimus levels for non-Federally listed HAPs will not be provided.

To accomplish this task Weston will:

- Develop a modeling protocol to identify emission levels that would result in ambient concentrations of Federally listed HAPs that may cause adverse impacts on humans or the environment.

- Weston anticipates the modeling process will identify a generic facility or stack that would be modeled to determine the appropriate levels. This might include just one stack (worst-case scenario) or a series of stacks with varying heights.

- The results of this analysis would result in a table of emission levels by pollutant. An example is shown in Table 2-1.

Table 2-1

Example Table of De minimus Emission Levels by Pollutant Type[a]

Pollutant	Averaging Period		
	Hourly (lb/hr)	24-hour (lb/24-hr)	Annual (lb/yr)
Acetaldehyde	5.0		
Arsenic			5
Benzene			12
Nickel		2.1	
Toluene	6	98	

[a] Values in Table 2-1 are for example purposes only. Listing of Federal HAPs is not complete.

3. TASK 3 – DEFINE A SCREENING PROCESS FOR HAPS LISTED IN ARIZONA AMBIENT AIR QUALITY GUIDELINES (AAAQG) THAT ARE NOT FEDERAL HAPS

Weston will define a screening process to identify additional HAPs that may be listed under ARS §49-26-04, by reviewing data for the list of AAAQG compounds that are not listed in the §112. The suggested approach to this screening process is described below. Weston assumes that modifications to this process will be developed in conjunction with guidance from ADEQ. It is anticipated that the approach for modeling and developing threshold standards developed under this task for other non-Federal HAPs will be very similar to the approaches developed under task 1 for Federal HAPs.

3.1 Task 3-a. and 3-b. Identify Data Sources & Develop an Approach to Determining Ambient Air Criteria for Pollutants that are not Federal HAPs

Based on work performed identifying criteria for Federal HAPs in Task 1, a protocol will be developed that will allow the agency to establish a process to develop additional criteria for non-Federal HAPs (e.g. AAAQG compounds) that might be of concern in the future. This protocol will include a hierarchy of toxicological data sources to be consulted in developing future criteria. As presented in Task 1-b, these sources will included:

- EPA's Integrated Risk Information System (IRIS)
- EPA's Health Effects Assessment Summary Tables (HEAST)
- EPA's Region 3 Risk-Based Concentrations (RBCs)
- EPA's Region 9 Preliminary Remediation Goals (PRGs)
- EPA's National Center for Environmental Assessment (NCEA)
- ATSDR Minimal Risk Levels (MRLs)
- California EPA Risk Assessment Guidelines – short and long term
- World Health Organization database (WHO)
- Other sources including occupational values (e.g., OSHA PELs) and short term exposure criteria (e.g., ERPGs)

This hierarchy will likely need to be modified and expanded based on the assumption that these compounds may be less common than the Federal HAPs and that toxicological criteria may be more difficult to find in available sources.

It is anticipated that the protocol developed in this task could also be used in the future to modify or update both non-Federal HAP and Federal HAP criteria as new toxicological data becomes available in the peer-reviewed literature.

3.2 Task 3-c. Identify Sources of Information for Methodologies to Quantify Emissions and Ambient Concentrations of non-Federal HAPs

Weston will identify sources of information to demonstrate that adequate and reliable methodologies exist for quantifying emissions and ambient concentrations of the pollutants. This will be achieved by conducting the following:

- Review list of sources in Arizona that would emit the chemicals listed in AAAQG that are not §112 HAPs.
- Review sources of emission factors such as:
  - EPA documents (e.g., AP-42)
  - California or other state databases
  - Trade group emission factors
  - Mass-balance
- Review modeling methodologies for source groups such as:
  - Industrial point sources
  - Area sources (e.g. wastewater treatment ponds)
  - Mobile sources (e.g., highways, non-road) etc.

3.3 Task 3-d. Estimate Time and Cost for Screening Process

Weston will use information developed in Tasks 3-a through 3-c to develop cost and time estimates to perform screening analyses to determine sources of pollutants that are listed in AAAGS but not in §112. Weston's time and cost estimate will consider:

- Types of sources to be evaluated (point, area, or mobile).
- Types of compounds to be evaluated.
- Evaluation of appropriate standards.
- Determinations of adverse human impacts or adverse environmental impacts.
- Determination of background values.

4. TASK 4 – FINAL DELIVERABLES

Within 75 days of the TAO SOW award, Weston will present a draft report to ADEQ detailing the results of Tasks 1 through 3 outlined above. In order to meet the scope schedule, Weston assumes that ADEQ will provide one concise set of comments on the draft report within seven days of receiving the draft report. Within seven days of receiving ADEQ's comments Weston will deliver the final report. The draft and final reports will include:

- A cover page, executive summary, table of contents, and lists of tables, figures, and appendices.
- Citation of information, using end notes for each chapter.
- Descriptions of the methods used for analysis, including identification of models and analytical techniques, explicit and implicit assumptions, and reliability/precision/accuracy of the methods used.
- Weston will provide two copies of the Final Report, one unbound master, and an electronic copy in Microsoft Word 2000 format by electronic mail transmission, and on compact disk. In addition, Weston will provide copies of spreadsheets and nonproprietary models used for the analyses conducted to produce the report.

5. STAKEHOLDER MEETINGS

Weston assumes that a lead air pollution dispersion modeling expert and a Ph.D. toxicologist will attend three to four Stakeholder 1-day meetings in Phoenix. These meetings will require the Weston staff to meet with the ADEQ on the day prior to the Stakeholder meeting to discuss anticipated issues and on the day after the Stakeholder meeting to discuss follow-up items. Weston has made an estimate of the time needed by technical staff to address the stakeholder issues. Additional time may be needed depending on the stakeholder requests and comments.

Weston also has anticipated a meeting by the Weston Ph.D. toxicologist with the Governor's Review Council.

6. PROJECT MANAGEMENT

This section describes Weston's project management procedures for the project. In addition to attending the kickoff meeting, monthly conference calls and managing staff, this section describes the tools available to Weston project managers that enable them to complete a project on time and within budget.

6.1 Meetings with ADEQ

The Project Manager or Task Leader already met with ADEQ in Phoenix, Arizona to initiate the project. A Task Leader will meet with ADEQ modeling staff to discuss modeling procedures and to update the methodologies discussed in the 1993 "Revised Background and Rationale for Proposed HAP Screening Methodology, ADEQ." The Project Manager and Overall Task Leader will be available for a meeting in Phoenix with ADEQ to present the draft final report.

6.2 Bi-Weekly Conference Calls

Weston has budgeted conference calls every other week for this project. Weston's Project Manager and/or Task Leader(s) will participate in these conference calls, as required. Weston will also provide written minutes outlining the discussion topics. For budgeting purposes, Weston has assumed the bi-monthly conference calls will last one hour and one hour is allotted for writing meeting minutes.

6.3 Project Controls

Weston's technical management is made up of four specific project control elements:

- Administrative and technical (daily personnel) control
- Financial (programmed) control
- Schedule (programmed) control
- Quality (preassigned) control

These elements are discussed in the subsections that follow.

6.4 Administrative and Technical Control

Administrative and technical control over the execution of the project rests with the Project Manager and is exercised as appropriate to the situation and individuals involved. The Project Manager schedules regular technical reviews. In these reviews, the project participants make informal presentations. In addition to these reviews, the Project Team makes regular use of informal meetings, work memoranda, and regular information exchange to foster the effective use of the technical and administrative resources within the company. Externally, the Project Manager maintains close contact with ADEQ to keep them aware of project progress and to solicit feedback.

6.5 Financial Control

Financial control is attained through the use of Project Control System (PCS). The PCS by each task/subtask of a project provides weekly summaries of the expected labor hours and effort for each task and subtask of a project. The PCS also has a number of financial control techniques, internal reports, and review procedures to ensure early visibility and effective control of the project's financial status. This allows documentation and control of costs by activity on a subtask-by-subtask basis.

6.6 Schedule Control

There are several ingredients in the makeup of a successful consulting firm that result in a consistent meeting of schedules. These same ingredients are responsible for the ability to confidently and accurately predict schedules and to complete work despite task or scope changes.

- **Personnel** — The firm's personnel must know the client's specific objectives within the project. They must be aware of potential pitfalls so as to avoid them. In short, the personnel must have done it before, not once, but a number of times. Experience in what to do, how to do it, and what to expect while doing it results in the ability to set and meet schedules. Weston's personnel have that experience.

- **Commitment** — The selected firm must have a dedicated commitment to the client and the project. A condition of employment with the Weston organization is a commitment to the clients' and projects' requirements.

- **Management Control** — In order to meet a schedule, the selected firm must have control over those items within the project that are Weston's responsibility. Weston's experience with clients has shown that a one-firm (or dominant firm) effort having a management-oriented team that is controlled internally results in more consistent schedule compliance. The firm must have task supervisors reporting to one Project Manager. This approach results in one direct line of communication between Weston and the client, and it precludes time loss and other inefficiencies that are incurred when there is more than one chain of responsibility. This approach also provides a single line of accountability between Weston and the client.

6.7 Quality Control

In order to consistently provide services and deliverables that meet client and regulatory requirements, Weston developed a **Quality Management System** (QMS) that is consistent with the provisions of the International Organization for Standardization (ISO) International Standard ISO 9001, *Quality Management Systems—Requirements*. Weston intends to enhance client satisfaction by applying a QMS that includes the major elements of ISO 9001, such as understanding client and regulatory requirements, and preparing plans based on these requirements; implementing process approach for project execution; monitoring process performance; and continual improvement of processes.

The provisions of Weston's QMS are documented in Weston's Quality Management Manual, which applies to our core business areas. Our goal is to provide cost-effective, technologically feasible, and publicly acceptable solutions for meeting or exceeding our clients' expectations.

Weston implements project management QC measures on all projects. The essence of QC is in the successful execution of project management. QC procedures are initiated prior to project startup through the development of individual QC assignments. This approach, which consists of sound scientific practice and specific assignments, will be incorporated within all phases of the project. Normal procedural mechanisms used include the following:

- **First-Level Numerical Check** — Verification of accuracy of numerical work.
- **Technical Review** — Review by a designated individual for technical feasibility and accuracy of the work.

- **Senior Level Review** — Weston has established procedures requiring documents to be reviewed by a senior level staff member prior to delivery to the client.

The QC efforts will reflect the nature of the data generation phases of the project. The QC plan must have specific components for field data, laboratory data, existing databases supplied by the client, existing data collected from outside sources, and data supplied by subcontractors. The plan must also address acquisition and analysis procedures.

7. SCHEDULE

The proposed schedule for completion of the Scope-of-Work Tasks for this project is shown in Table 7-1. Figure 7-1 is a graphical presentation of the project schedule. ADEQ may be required to revise the proposed schedule for the rulemaking process due to the delays of issuing the project Task Assignment. Since the project schedule is very aggressive, it will be necessary for ADEQ to respond to information supplied or requested by Weston in a timely manner. This information will sometimes require ADEQ to make policy decisions in a very rapid manner. Weston has assumed this will be accomplished. Delays by ADEQ in making policy decisions may delay the project accordingly.

Table 7-1
Weston Task Schedule

Task #	Due Date	Task
NA	3 March	Project Awarded
1	17 March	Project Kickoff Meeting in Phoenix
1-a	17 March	ADEQ Provides Weston with Complete Listing of Emission Sources
1-a/3-a	8 April	Task Leaders Meet with ADEQ Modeling Staff
1-a	15 April	Weston Provides ADEQ with Method for Estimating Background Concentrations
1-a	28 April	ADEQ Approves Method for Estimating Background Concentrations
1-a	1 April	Weston Develops Listing of Sources with

Task #	Due Date	Task
		Emissions>1/2.5 tpy of Federally Listed HAPs
1-b	13 May	Weston Provides ADEQ Draft Modeling and Background Approach
1-b	20 May	ADEQ Approves Modeling and Background Approach
1-b	22 April	Weston Proposes Method for Developing Long-term Health Based Criteria for Federally Listed HAPs, as well as preliminary recommended values
1-b	1 May	ADEQ Approves Method for Developing Long-term Health Based Criteria for Federally Listed HAPs, as well as preliminary recommended values
1-b	6 May	Weston Proposes Method for Developing Short-term Health Based Criteria for Federally Listed HAPs, as well as preliminary recommended values
1-b	17 May	ADEQ Approves Method for Developing Short-term Health Based Criteria for Federally Listed HAPs, as well as preliminary recommended values
1-b	26 May	WESTON finalizes short-term and long-term health-based criteria.
1-b	10 June	Weston Conducts Screening Modeling
1-b	10 June	Weston Recommends Listing of Sources
1-b	17 June	ADEQ Approves Listing
2	8 April	Weston Interviews EPA/ADEQ Regarding De minimis Levels under §112(g)
2	15 April	Weston Develops De minimis Levels
2	28 April	ADEQ Approves De minimis Levels
3-a	22 March	Weston Reviews State HAP Listing
3-a	25 March	Weston Develops Lists of HAPs not Listed in §112
3-b	3 June	Develop Methodology and Hierarchy for Developing ambient air criteria for compounds that are not

Task #	Due Date	Task
		Federal HAPs
3-c	3 June	Develop Sources of Information
3-d	17 June	Estimate Time and Cost to Conduct Screening
4	21 June	Weston Provides Draft Report
4	28 June	ADEQ Reviews Draft Report
4	6 July	Weston Provides Final Report